

CLAIMS

1. A system for driving a photoreceptor belt, for an electrophotographic printing machine, at a predetermined operating speed comprising:

a speed sensor operatively associated with said photoreceptor belt to sense the speed of the belt and generate a signal indicative thereof;

a main drive motor and an assist drive motor operatively associated with said photoreceptor belt to apply a cumulative torque thereto, said cumulative torque being split between said main drive motor and said assist drive motor according to a predetermined function;

a first control circuit for supplying an input voltage to said main drive motor to enable said main drive motor to generate a torque according to said predetermined function, said first control circuit including a circuit for receiving said speed signal from said speed sensor and comparing said indicated speed with a predetermined operating speed and further adjusting said input voltage relative to the difference;

a second control circuit for supplying an input voltage to said assist drive motor to enable said assist drive motor to generate a torque according to said predetermined function.

2. A system for driving a photoreceptor belt, for an electrophotographic printing machine, at a predetermined operating speed, as described in claim 1, wherein said predetermined function comprises a ratio of said input voltage

to said main drive motor to said input voltage to said assist drive motor.

3. A system for driving a photoreceptor belt, for an electrophotographic printing machine, at a predetermined operating speed, as described in claim 1, wherein, to provide said predetermined function, said second control circuit supplies a voltage to said assist drive motor as a percentage of the input to said main drive motor.

4. A system for driving a photoreceptor belt, for an electrophotographic printing machine, at a predetermined operating speed, as described in claim 1, wherein to provide said predetermined function, said second control circuit supplies a voltage to said assist drive motor as a percentage of the input to said main drive motor plus a predetermined increment to said assist drive motor input voltage.

5. A system for driving a photoreceptor belt, for an electrophotographic printing machine, at a predetermined operating speed, as described in claim 4, wherein said predetermined increment is varied according to the speed of the photoreceptor belt.

6. A system for driving a photoreceptor belt, for an electrophotographic printing machine, at a predetermined operating speed, as described in claim 5, wherein said predetermined function increases said increment as the belt accelerates from 0 to 100% of said predetermined increment when the photoreceptor belt reaches its operating speed.

7. A system for driving a photoreceptor belt, for an electrophotographic printing machine, at a predetermined operating speed, as described in claim 1, wherein the input of said second control processor is connected to the output of said first control processor.

8. A system for driving a photoreceptor belt, for an electrophotographic printing machine, at a predetermined operating speed, as described in claim 1, wherein the output of the first control processor is a pulse wave modulated signal.

9. A method for driving a photoreceptor belt, for an electrophotographic printing machine, at a predetermined operating speed comprising the steps of:

sensing the speed of said photoreceptor belt and generating a signal indicative thereof;

driving said photoreceptor belt at said operating speed by engaging a main drive motor and an assist drive motor with said photoreceptor belt to apply a cumulative torque thereto, said cumulative torque being split between said main drive motor and said assist drive motor according to a predetermined function ;

supplying an input voltage to said main drive motor to enable said main drive motor to generate a torque according to said predetermined function,

adjusting said input voltage in response to a difference between said speed signal from said speed sensor and a predetermined operating speed;

supplying an input voltage to said assist drive motor to enable said assist drive motor to generate a torque according to said predetermined function.

10. A method for driving a photoreceptor belt, for an electrophotographic printing machine, at a predetermined operating speed, according to claim 9, wherein, to provide said predetermined function, said second control circuit supplies an input to said assist motor at a percentage of said input to said main drive motor.

11. A method for driving a photoreceptor belt, for an electrophotographic printing machine, at a predetermined operating speed, according to claim 9, wherein, to provide said predetermined function, said second control circuit supplies a voltage to said assist drive motor as a percentage of the input to said main drive motor plus a predetermined increment to said assist drive motor input voltage.

12. A method for driving a photoreceptor belt, for an electrophotographic printing machine, at a predetermined operating speed, according to claim 9, wherein in said step of supplying a voltage to said assist drive motor, said voltage is supplied as a percentage of the input to said main drive motor.

12. A method for driving a photoreceptor belt, for an electrophotographic printing machine, at a predetermined operating speed, according to claim 11, wherein said predetermined increment is varied according to the speed of the photoreceptor belt.

13. A method for driving a photoreceptor belt, for an electrophotographic printing machine, at a predetermined operating speed, according to claim 10, wherein in said step of adding said predetermined increment, said increment reaches full magnitude when the photoreceptor belt reaches its operating speed.

14. A method for driving a photoreceptor belt, for an electrophotographic printing machine, at a predetermined operating speed, according to claim 11, wherein said step of supplying the input to said second control processor is accomplished by connecting said second control processor to the output of said first control processor.

15. A method for driving a photoreceptor belt, for an electrophotographic printing machine, at a predetermined operating speed, according to claim 9, wherein the voltage is supplied to said main drive motor as a pulse wave modulated signal.